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ABSTRACT

A comparative study is presented of three types of teaching methods: cooperative, competitive, and individualistic. It is pointed out that while studies related to this topic show that the cooperative method seems to be the most widely used and perceived as the most beneficial for teaching students, competitive and individualistic teaching methods can also create a positive learning atmosphere and experience in the classroom. The first three parts of the study contain annotations of writings that examine areas in which the three teaching methods are most effective with students. The last and major part of the study compares the three instructional methods and where they are best administered in the education of students. The annotations describe how a particular teaching method is related to certain areas of educating different types of students. Summaries are provided of each of the three teaching methods and some recommendations are made. The data from the study are displayed in tables and a bibliography is included. (JD)

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Comparison of the Three Teaching Methods:

Cooperative, Competitive, and Individualistic

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for the course S591---Exit Project
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INTRODUCTION

There are three types of interaction patterns which can be constructed for students learning a wide assortment of skills: cooperative , competitive, and individualistic (Johnson and Johnson, 1975). In a cooperative learning situation, a student's goal achievement is positively correlated. When one person achieves his/her goal, all others with whom he/she is linked achieve their goal. In a competitive situation, a student's goal achievement is negatively correlated. When on individual achieves his/her goal, all others with whom he/she is competitively linked fails to achieve his/her goal. In an individualistic situation, a student's goal achievement is independent; the goal achievement of one person is unrelated to the goal achievement of others (Bjorkland, Johnson, Krotee). Which method brings about maximum learning in our students?

Most studies related to this topic show that the cooperative method seems to be the most widely used and perceived as the most beneficial for teaching students (Wlodkowski). But are we not leaving out something? Is there room for a competitive or individualistic atmosphere in the classroom if done in a constructive and humanistic way, still creating a positive learning experience?

STATEMENT OF THE PROBLEM

Competitive and individualistic teaching methods as well as cooperative can create a positive learning atmosphere and experience in the classroom (Cronin and Hagerty, Michaels).

PURPOSE OF THE STUDY

The purpose of this study is to identify areas in which the competitive and individualistic methods of teaching can be beneficial to the learning process of each student. This study is by no means a study to discredit any of the three particular teaching methods, rather it is a study to help correlate these methods into areas which could serve the student most effectively.

ORGANIZATION OF THE STUDY

The first three parts of this study contain annotations that examine areas in which these teaching methods, cooperative, competitive, and individualistic are most beneficial to the students. The last and major part of this study compares the three instructional methods and where they are best administered in the education of our students.

LIMITATIONS OF THE STUDY

There was not a great amount of information to be found on the individualistic teaching method. Most material researched dealt basically with the cooperative and competitive teaching methods, with the individualistic method added to use as a source for comparison; however in doing so, this provided deeper insight into which method was most beneficial for a particular teaching style.

GLOSSARY

affective processes -- emotions (Webster), attitudes such as objectivity, curiosity, honesty, open-mindedness (Okebukola).

cognitive processes -- mental ability, reasoning, factual knowledge, thinking (Gronlund) (Webster).

competitive teaching method -- student goal achievement negatively correlated; when one person achieves his/her goal, others he/she is competitively linked with fail theirs. (Johnson, Bjorkland, Krotee).

cooperative teaching method -- student goal achievement is positively correlated; when one person achieves his/her goal, the others he/she is linked with achieve their goals. (Johnson, Bjorkland, Krotee)

criterion referenced -- what an individual can do without reference to the performance of others. (Gronlund).

individualistic teaching method -- student goal achievement is independent; unrelated to the goal achievement of others. (Johnson, Bjorkland, Krotee).

laissez faire -- deliberate abstention from giving direction - individual freedom of choice and action (Webster); students go at their own pace and interact in any way they choose. (Johnson, Rynders, Johnson).

norm referenced -- how an individual's performance is compared to others (Gronlund).

path analysis -- the process of analyzing a student's achievements or failures in trying to obtain a certain goal, instead of just evaluating the final outcome. (Covington, Omelich)

rotating -- having a class or individual deliberately try different teaching methods under guidance and supervision (Singleton)

solid -- instructing a class or individual under one type of teaching method or atmosphere without any change. (Singleton).

vocational training -- training a student in a skill or trade to be possibly pursued as a career. (Molnar, Pesut, Webster)

ANNOTATIONS

Each annotation will attempt to describe how that particular teaching method, cooperative, competitive, or individualistic relates to certain areas of educating each student.

THE COOPERATIVE INSTRUCTIONAL METHOD

Affective Processes (Classroom)

Okebukola, Peter A., "Effects of Student - Student Interactions on Affective Outcomes of Science Instruction," Research in Science and Technological Education volume 3: 5-17, No. 1, 1985.

By means of a pretest - treatment - postest design with a control group, this study investigated the effects of cooperative, competitive, and individualistic student - student interactions on affective outcomes of science instruction. Attitudes such as objectivity, open mindedness, curiosity, respect for evidence, honesty, and critical mindedness are examples of affective processes. Data collected from the study rejected the null hypothesis of no difference in the effects of the three interaction patterns on affective outcomes. It was found that the cooperative interaction pattern encouraged affective processes.

See Appendix - Table 1 on page 27.

Affective Processes (Handicapped and Non-handicapped)

Johnson, Roger, Rynders, John, and Johnson, David W., "Interaction Between Handicapped and Non-handicapped Teenagers as a function of Situational Goal Structuring: Implications for Mainstreaming," American Educational Research Journal volume 16: 161-167. No. 1, Spring, 1979.

In six weekly sessions of a bowling class, the authors compared interpersonal interaction and attraction between non-handicapped junior high school students and highly trainable mentally retarded peers, and the effects of cooperative, individualist, and laissez faire goal structures had on them. The results indicate that considerably more positive interactions took place between the non-handicapped and the handicapped students in the cooperative conditions in comparison to the individualistic or laissez faire conditions.

Affective Processes (College Students)

Oppenheimer, Kay, "Self-Esteem of College Freshmen and 'Co-op' Education," Dissertation Abstracts International volume 43 (4-A): October, 1982.

The purpose of this study was to determine the effect that the Cooperative Education Program has upon the self-esteem of urban community college freshmen. The study investigated whether (1) participating college students would show improvement in their self-esteem, (2) the short - term and long - term gains that would be affected by previous work, sex, age, and course of study, and (3) whether the order of participation has a long - term effect on self-esteem gains. The conclusions drawn from this study showed that the college students (1) presented gains in self-esteem, and (2) the short - term and long - term gains were not affected by the number of years since high school, sex, and course of study; however, age and previous work experience did have a significant effect upon gains in self-esteem.

Affective Processes (Sports)

Bjorkland, Robert, Johnson, Roger T., and Krotee, March L., "The Effects of Cooperative , Competitive, and Individualistic Student Interaction Patterns of the Achievement and Attitudes of Students Learning the Golf Skill of Putting," Research Quarterly for Exercise and Sports volume 55: 129-134, No. 2, 1984.

In this study 150 university students were assigned at random to one of three specific learning procedures, cooperative, competitive, and individualistic. The golf skill of putting was taught, with putting ability, attitudes toward instructor, attitudes toward peers, attitudes toward self, and attitudes toward the different interaction patterns being measured. Results indicate that cooperative interactions tend to promote putting skills and more positive attitudes toward the instructor and each other. Students showed a preference for their own interaction patterns in the cooperative and competitive conditions, while all students indicated less positive feelings for the individualistic condition.

See Appendix - Table 2 on page 28.

Potter, Glen, and Wandzilak, Thomas, "Youth Sports - A Program Evaluation," Journal of Physical Education and Recreation volume 52: 67-68, January, April, 1981.

A basketball program was developed with four primary objectives in mind, (1) maximum participation, (2) having fun, (3) improving fundamental skills, and (4) maintaining players' level of interest. All teams and games were organized in such a way that all players got an equal amount of playing and starting time. A pre-season and post-season poll was taken of each participant on how their feelings were on various aspects of the basketball program. The results showed that the four primary objectives were met and each player had a better feeling of self-worth.

Affective Process (Ethnic Relationships)

Johnson, David W., Johnsons, Roger T., Tiffany, Margaret, and Zaidman, Brian, "Cross-Ethnic Relationships: The Impact of Intergroup Cooperation and Intergroup Competition," Journal of Educational Research volume 78: 75-79, No. 2, November/December, 1984.

This study dealt with interaction between majority and minority students. Intergroup cooperation and intergroup competition were compared to determine if they promoted systematic differences. Fifty-one fourth grade students were assigned to conditions where minority status and sex were controlled. They participated in a study for 55 minutes a day for ten days. The results indicated that intergroup cooperation promoted more inclusion of minority students and more cross ethnic relationships.

Work Experience

Paris, Kathleen A., "The Wisconsin Work Experience and Career Exploration Program (WECEP), 1978-79: Comparison of Students Attendance, Grade Points, and Behavior," Dissertation Abstracts International volume 42 (12-A): June, 1982.

This program was organized for fourteen and fifteen year old students and identified as potential school leavers. Students worked part-time during the school day and received both school credit and pay for their job performance. A measurement of the students attendance, grades, and behavior were taken before and after this program was put into effect. The results showed that students who had enrolled in the program improved their attendance, grades, and behavior patterns, while those not in the program regressed.

Bloomer, Anne C., "Effects of Cooperative Learning on the Acquisition of Basic Computing Skills: A Pragmatic Approach to Developing Cost-Effective Training Methods for Naive Adult Learner," Dissertation Abstracts International volume 45 (8-A): February, 1985.

The purpose of this study was to investigate the effectiveness of a cost effective training method; cooperative learning on acquiring basic computing skills in comparison to individual learning methods. Perceptional motor skills and personality traits were also studied to determine possible interaction effects. This basic computing skills program was administered to 84 subjects, 34 in the individual learning method and 50 in the cooperative. In conclusion, there were no significant differences between the two methods, which makes the cooperative learning method a viable solution for the training of a large population of adults.

Molnar, Daniel, and Pesut, Robert, "Cost Effectiveness Analysis of Selected Vocational Programs With Cooperative Components Versus In - School Vocational Programs," American Educational Research Association, Washington, D.C.: 39-44, March 30 - April 3, 1975.

This study attempted to determine the feasibility of performing a cost-effectiveness analysis comparing the cooperative method to methods which do not use work experience in vocational training. Twelve schools in Minnesota, North Carolina, and Ohio provided data for the study. Their conclusion was that it is possible to collect and analyze cost and effectiveness information, but there are no clear-cut advantages between the two methods. The surveyed employers indicated that they favor graduates of cooperative programs.

Academic Performance

Singleton, H. Wells, "Cooperative Skill Development in Equal Status Small Groups," Annual Meeting of the American Research Association, New York, N.Y.: April 4-8, 1977.

The objective of this study was to (1) systematically study the process by which small group cooperative develops and (2) to produce guidelines that will be useful to teachers. The sample consisted of 84 seventh grade boys and girls of middle class families. Three randomly assigned samples (rotating, solid, and control) comprised the experimental activities. The criterion activity was designed to promote both cooperative and competitive behavior among small groups of four. The intervention activities consisted of games in which cooperative skills and processes were examined in the small group setting. The results showed a significant gain in non-competitive gains for the rotating and solid samples while the control sample showed a slight decrease. Conclusions are as follows: (1) there are certain identifiable conditions under which group members will act cooperatively and (2) skills training is a viable way of teaching cooperative interaction in small groups.

Slavin, Robert E., "Academic Performance and Student Attitudes," Journal of Educational Psychology volume 70: 531-537, 1978.

This study investigated the independent effects of level of reward (cooperative learning team vs. individual performance) and comparison of student quiz scores (ability homogeneous groups vs. comparison entire class) on student achievement and attitudes. The subjects were 205 seventh grade students on eight English classes studying grammar and punctuation for ten weeks. Results indicated reward level effects in favor of the comparison with equals on percentage of time on task, positive interpersonal perception, and other variables. No academic achievement effects were found for either factor.

Covington, Martin V., and Omelich, Carol L., "Task-oriented Versus Competitive Learning Structures; Motivational and Performance Consequences," Journal of Educational Psychology volume 76: 1038-1050, No. 6, 1984.

This study investigated both the qualitative (motivational) and quantitative (performance) consequences of two fundamental features of task-mastery learning structures: these structures were opportunities and criterion-referenced grading. College students were assigned to either a norm-referenced (competitive) or a criterion-referenced grading system and to single test or retest conditions. Results indicated the performance superiority occurred primarily because of the retest option, with enhanced motivation due to both retesting opportunities and criterion-referenced standards. Also path analysis confirmed that increased performance enhanced motivational involvement, which in turn fostered further learning gains.

THE COMPETITIVE INSTRUCTIONAL METHOD

Achievements and Attitudes

Devries, David L., and Hulten, Burma H., "Team Competition and Group Practice: Effects on Student Achievement and Attitudes," National Institute of Education, Washington, D.C.: Report No. 212, September, 1978.

This study was conducted to determine the relative contribution of team competition and group practice sessions to the effectiveness of classroom instruction. Two hundred ninety-nine seventh grade students participated in a ten week field experiment involving mathematics. A reward system and practice mode design with an external control group was used. Team competition and individual competition were the two levels of reward system. Group practice and individual practice were the two practice modes. The results indicated: (1) team competition students improved significantly more on SAT scores, attached more importance to game success, and reported a higher level of peer group interest and pressure to do well in comparison to individual competition; (2) the group practice students did not differ much in their performance in comparison to the individual practice students, but did attach less importance to game success than students who practiced individually; (3) the team competition students improved significantly on SAT scores, reported a higher expectancy of success at the game, attached more success to game success, reported more interest by peers in their performance, and were more satisfied with the game task in comparison to the control group.

Burlingame Elementary School District, California, "School-ympics," Reports - Descriptive: June, 1984.

This program was conducted by Burlingame Intermediate School in 1980. It consisted of a 10-day event involving all students in their particular school. The schoolwide events included: (1) the use of all areas of the curriculum in the competitive events, (2) the involvement of students, staff, parents, and community, (3) the selection and study of a country by each homeroom, (4) the opening day ceremonies, and (5) the special assembly of awarding medals. Some of the competitive events were mathematic contests, a spelling marathon, tug of war, track and field, and gymnastics. The results reported by the teachers showed that this program had an enormous impact on the students. The competitive and motivational aspects of the School-ympics had students eager to study subjects in which they might otherwise not be interested.

Cronin, Robert P., and Hagerty, John E., "Motivation through Competition: Fostering Middle School Student and Faculty Morale," NASSP Bulletin volume 68: 83-86, February, 1984.

The morale of students and teachers at Qualters Middle School was quite low, due to budget, staff, and program cuts. As a result, the principal and his assistant proposed and organized a year-long interdisciplinary team competition featuring a variety of events of an academic, athletic, and social nature. More than 250 students, including special education students, participated. The results showed that student and teacher enthusiasm and morale were extremely high. Peer recognition and respect were shared equally between athletically and academically talented students. Parent support increased dramatically.

Simpson, Jeanette, "A Writing Contest? Why Bother," Exercise Exchange volume 26: 47-48, September, 1983.

A writing contest was conducted for students in kindergarten through the sixth grade by the librarian at Burbank Elementary School. The students observed a film and were given two weeks to complete entries in a contest that included poems, short stories, or essays. Certificates were given to all students who participated in the competition, and ribbons were given to the winners. The results in the first year showed there was a high response from students in kindergarten through third grade, but dropped off tremendously in grades four through six. The second year showed the same results, except that the percentages of fourth graders competing the second year in comparison to the first year had risen forty percent. This fact could possibly mean that the interested students of the third grade of the first year carried over to the next year. and possibly for a longer period of time.

Discipline

Braithwaite, John, and Braithwaite, Valerie, "An Exploratory Study of Delinquency and the Nature of Schooling," Australian and New Zealand Journal of Sociology volume 14: 25-32, February, 1978.

A study was conducted by these authors to test the hypothesis that a less competitive school system might eliminate many of the structural strains which create juvenile delinquency. The present study investigates this hypothesis through an exploratory comparison by distributing a 37 item self-report delinquency questionaire to 576 male students at eight secondary schools in Australia; five of these schools were considered non-competitive school systems and three schools were considered competitive. The results indicated that boys from a non-competitive school engage in more law violating behavior than their counterparts from competitive schools.

See Appendix - Table 3 on page 29.

Intramural Sports

Spindt, Gary B., "Intramural Superstars," Journal of Physical Education, Recreation and Dance volume 52: May - December, 1981.

A junior high intramural Superstars program was initiated in Sierra Vista Junior High to arouse the enthusiasm of the student body, since there is no interscholastic competition in their school district. There were twenty different sports offered, which did not favor the "big kid." Maximum publicity was given throughout the school and community. The Superstars competition was the most popular event of the entire intramurals program.

Alienation

Robinson, Ronald Dean, "The Effects of Authoritarianism, Competition, Reward and Punishment on the Psychological Climate of Schools," Dissertation Abstracts International volume 36 (9-A): March, 1976.

A study was conducted to determine what had the greatest effect on student alienation in the classroom. Faculty and students in eight different school systems participated in the study. The faculty completed questionaires on classroom climate, and the students a similar questionaire on classroom climate. The results showed where the more "closed atmosphere" was prevalent in the classroom, the more authoritative and competitive climate was evident. This in turn led to a higher feeling of alienation between the students and faculty.

Genders

Chandler, Theodore A., and Cook, Elizabeth A., "Is Fear of Success a Motive? An Attempt to Answer Criticisms," Adolescence volume 19: 667-673, No. 75, Fall, 1984.

A study was conducted involving 105 fifth through eighth grade girls and boys under competitive and non-competitive conditions to determine the motivational nature of the girls. The non-competitive conditions were conducted in a regular classroom setting, in which five questions were to be answered. The competitive condition paired two participants, male and female, in which one would succeed at the task and the other would fail. The results found that the female students didn't show much performance change under either condition. Observations of the male students detected that a number of males got upset when put in a position of possible failure. They appeared to take definite and purposeful action to insure they would not lose.

Opinions

Arth, Alfred A., Freeman, Lucille M., and Lawton, Edward J., "Introducing Competition to the Middle Level Classroom: Providing for Success," NASSP Bulletin: 63068, September, 1984.

This article describes the guidelines set forth before a student who should participate in a competitive activity in the classroom. These guidelines were (1) mastery of material, (2) whether the student has the competitive skills, (3) student must be willing to enter competition, (4) student must realize when there is a time to compete and a time to remain a spectator, and (5) the student must be able to accept winning and defeat as a way of life. In conclusion, competition can be used in the classroom with success if these guidelines are met. Students need the experience of competition for further life situations in order to help improve personal weaknesses and strengths, to deal with success and failure, and to be involved with other students.

Elleson, Vera J., "Is Competition a Cultural Imperative?" The Educational Digest; 24-25, November, 1984.

This article is very critical of the competitive atmosphere of our schools and everyday lives in general. The author suggests that our society is a very competitive one, and that children are brought up with the idea that one of the only ways to get ahead is by competing. She also suggests that the use of competition in the classroom is only for making students do boring tasks. The author's ideas for correcting this competitive atmosphere is to do more group projects, encourage working together, be a good role model, and keep competition in the classroom; however, it is advisable to keep it in perspective and to a minimum.

THE INDIVIDUALISTIC INSTRUCTIONAL METHOD

Michaels, James W., "Classroom Reward Structures and Academic Performance," Review of Educational Research volume 47: 87-98, No. 1, Winter, 1977.

Four different reward structures were identified in this study; they were as follows: (1) individual reward contingency, (2) group reward contingency, (3) individual competition, and (4) group competition. The study compared student scores from each of these our structures. The results showed the consistant superiority of individual competition, except for the students with low ability. A shortcoming of the individual reward structure and individual competition was the relative ineffectiveness in strengthening such group processes as collaboration, interpersonal interaction, and positive attitudes toward achievement.

See Appendix - Table 4 on page 30.

Dickle, Ellen Marie, "A Comparison of Individual and Team Learning," Dissertation Abstracts International volume 41 (9-A): 3864-3865, March, 1981.

The major purpose of this study was to determine the effectiveness of individual and team learning utilizing competitive and cooperative reward structures in terms of cognitive and affective outcomes. This study involved 1031 students in four middle class schools from diversified communities in the same school system. Students were assigned by random to the three following groups: team reward structure, individual reward structure, and a control group. In the team reward and individual reward structures, the students were given a performance goal to achieve. The results showed that students in the team treatment group showed greater potential than those in the individual treatment, and both were significantly higher than the control group.

SUMMARIES

Cooperative Instructional Method

In determining whether a particular teaching method is more beneficial to a student's continuing success in and out of the classroom, one must keep many objectives in mind. Teachers must make an attempt to obtain the highest academic performance from each individual student; however, making sure that each student retains the most positive affective attitudes towards his peers, faculty members, and acquaintances in everyday life.

After researching affective attitudes among non-handicapped students, Okebukola found through the cooperative teaching method, students attitudes such as objectivity, open mindedness, curiosity, honesty, critical mindedness, etc. were enhanced. He also noted that the cooperative interaction process helped develop the students affective attitudes. Johnson, Rynders, and Johnson also came up with the same results after studying the interaction processes of handicapped and non-handicapped students.

In comparing the affective attitudes developed during sports activities for older students, Bjorkland, Johnson, and Krotee found basically the same results as for handicapped and non-handicapped. College students preferred to determine their own interaction patterns in the specific groups where they were placed, but were found to have more positive attitudes towards others while in the cooperative group.

Potter and Wandzilak found that overall consensus for the younger students was a better feeling about their peers and themselves.

Johnson, Johnson, and Tiffany found through testing of students with different ethnic backgrounds that intergroup cooperation promoted more inclusion of minority groups and more cross ethnic relationships.

When the cooperative method was introduced into work related experiences, Paris found that students attendance, grades, and behavior of those who were enrolled in a co-op program fared better than those that weren't enrolled in this type of program. Bloomer found that it was less expensive to train students or adults in a cooperative learning atmosphere in comparison to an individual procedure, without any discrepancy in the material learned.

In regard to academic achievement and the cooperative learning method, Singleton found there are some areas in which groups will work together and obtain a higher degree of understanding of specific materials. Singleton also noted that skills training is a viable way of teaching cooperative interaction in small groups.

Competitive Instructional Method

Some very interesting results were found after researching materials dealing with the competitive teaching method. In the area of student achievement, Devries and Hulten found that in team competition, not individual competition, academic test scores improved dramatically and peer group interest was much higher; however, at the same time, group practice performance in comparison to individual practice performance did not differ much.

Burlingame elementary teachers found that by developing a competitive game approach in all the various areas of the school curriculum, the students interest and participation increased significantly. This fact was even evident in areas in which students had shown no previous interest prior to the competitive events. Cronin and Hagerty found the same to be true in a middle school in Massachusetts. Even the parents and local community became quite involved. Simpson, a librarian, also discovered, through a writing contest she conducted for elementary students, involvement increased substantially (it should be noted that each student received some recognition for their work).

A study was also conducted in Australia by Braithwaite and Braithwaite comparing competitive and non-competitive school systems and their problems with discipline. When they first started their study, it was with the idea of showing that non-competitive schools

had fewer discipline problems. To their surprise, the opposite was discovered. Competitive school systems had fewer problems with discipline. This was primarily because students from competitive school systems felt they needed to spend more time on their classwork in order to succeed in class.

Some drawbacks were evident when using competition in the classroom. Robinson noted if competition is used to an extreme (rewards and punishment, authoritarianism) and in the wrong manner, it could cause alienation between student and faculty. Chandler and Cook also discovered when different sexes are put in direct competition, negative attitudes appear to arise. This fact was not as noticeable in the female sex as it was in the male sex.

Individualistic Instructional Method

Not many studies were found on this subject by itself, but the studies that were found helped attain a deeper insight into this method.

During Michaels research, he discovered some interesting results when comparing individual reward contingency, group reward contingency, individual competition, and group competition structures. Except for low ability students, individual competition showed consistant superiority in test scores. A shortcoming of the individual reward contingency and individual competition was the relative ineffectiveness of obtaining positive affective attitudes.

Dickie determined through her study, that when comparing the effectiveness of team learning versus individual learning using competitive and cooperative reward structures, more learning took place in the team setting.

CONCLUSION S

In determining which one of the teaching methods, cooperative, competitive, or individualistic, is most beneficial for students, one must take a number of factors into account. How will each teaching method affect the attitudes of the students, the academic performance of the students, and the future of the students when they enter the community socially and productively?

In determining which teaching method is best suited for obtaining overall positive and productive affective attitudes in our students, one would tend to lean towards the cooperative methods. (Okebukola, Johnson, Rynders, Oppenheimer, and Johnson, etc.). But studies also indicate that if competition is handled correctly, this procedure can obtain very positive results. (Devries, Hulten, Cronin, Hagerty, the Burlingame Elementary School Faculty, etc.). Notice the term "handled correctly." If it is not done so, this competitive method could possibly lead to alienation between student and faculty. (Robinson). As a result, the cooperative method might possibly be a little safer or more productive when one looks at all the possible effects on the students.

When trying to decide which method is best for reaching full academic potential, all three methods play a big role. The individual and competitive methods seem to do an excellent job in bringing out the best in high-achievers. (Dickie, Michaels). The cooperative and

various forms of the competitive methods seemed to accomplish the best results from the middle and low achievers. (Michaels, Dickle, Cronin, Simpson, etc.).

When helping plan for the future of the students, what method should teachers use to determine the success of each student? Prospective employers tend to lean toward those students who have been in some type of co-op program when having to decide between applicants. (Paris, Molnar, Pesut). Or would employers choose students that come from a competitive school system, where there is a possibility of obtaining employees with fewer discipline problems. (Braithwaite and Braithwaite). There is always the possibility that employers want individuals who can work best independently (Dickle).

When deciding which teaching method, cooperative, competitive, or individualistic, is considered most beneficial to students, one must take many ideas into consideration. What is the student - teacher relationship, what are the students - teacher relationship as a group, and what do the students - teacher want to accomplish are just a few important questions instructors need to ask themselves before deciding what method will bring about maximum results.

RECOMMENDATIONS

It is recommended that:

1. Know your students personally and academically.
2. Know yourself and your relationship with your students.
3. Know your physical and social surroundings, and their boundaries in accordance with your class activities.
4. Know how to exchange ideas with other faculty and professional members.
5. Know how to be prepared for anything that arises unexpectedly.
6. Know the needs of your students, faculty, and community.

TABLE I. Means and standard deviations of pre- and posttest and mean gain scores on affective process development by group

	Cooperative $N=240$		Competitive $N=240$		Individualistic $N=240$		Control $N=240$	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
PRETEST	10·06	3·24	8·48	2·83	10·23	3·01	9·83	3·06
POSTTEST	30·41	8·21	21·63	6·25	18·46	6·35	11·36	7·12
MEAN GAIN	+20·35		+13·15		+8·23		+1·52	

TABLE IV. Pair-wise mean contrasts by the Tukey test affective process development

Group pairings	Mean difference	HSD	Decision at ·05 level
COOP vs COMP	8·78	0·1066	COOP>COMP
COOP vs IND	11·95	0·1066	COOP>IND
COOP vs CONTROL	19·05	0·1066	COOP>CONTROL
COMP vs IND	3·17	0·1066	COMP=IND
COMP vs CONTROL	10·27	0·1066	COMP>CONTROL
IND vs CONTROL	7·10	0·1066	IND>CONTROL

TABLE V. Means and standard deviations of pre- and posttest and mean gain scores on attitude to science by group

	Cooperative $N=240$		Competitive $N=240$		Individualistic $N=240$		Control $N=240$	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
PRETEST	28·43	10·21	29·18	13·03	26·41	10·19	28·06	11·06
POSTTEST	41·61	18·23	33·01	19·41	30·23	16·23	30·18	19·66
MEAN GAIN	+13·18		+3·83		+3·82		+2·18	

TABLE VI. Pair-wise mean contrasts by the Tukey test attitude towards science

Group pairing	Mean difference	HSD	Decision at ·05 level
COOP vs COMP	8·36	0·1066	COOP>COMP
COOP vs IND	11·38	0·1066	COOP>IND
COOP vs CONTROL	11·43	0·1066	COOP>CONTROL
COMP vs IND	2·78	0·1066	COMP>IND
COMP vs CONTROL	2·83	0·1066	COMP>CONTROL
IND vs CONTROL	0·05	0·1066	IND=CONTROL

Table 2

Mean Scores on Achievement for Skills Test

Task		Cooperation	Competition	Individualistic	F
Twelve Hole Putting Course[a]	Male	27.8	29.9	29.2	cond: 2.65*
	Female	32.6	33.0	34.5	sex: 54.66***
	Total	30.4	31.6	32.2	
15-foot Accuracy Test	Male	20.2	18.2	18.7	cond: .23
	Female	16.2	15.8	15.3	sex: 25.85***
	Total	18.1	16.9	16.8	
30-foot Accuracy Test	Male	20.5	18.5	18.7	cond: 4.33**
	Female	17.1	15.9	15.1	sex: 33.06***
	Total	18.7	17.1	16.7	

[a]Low score indicates better skill on twelve-hole course, high score indicates better skill on the 15- and 30-foot accuracy tests.

*$p = .075$; **$p < .05$; ***$p < .001$

Newman Kuels *post hoc* comparisons on 12-hole course ($p = .075$): Coop. > Comp.; Coop. > Ind.

Newman Kuels *post hoc* comparisons on 30-foot test ($p > .05$): Coop. > Comp.; Coop. > Ind.

Table 4

Summary of Reward Structure Comparisons

Study	*Subjects*	*Task*	*Relative Effectiveness*
Hamblin et al. (1971)	4th graders	Mathematics, reading, spelling	IRC = GRC*
Clifford (1971)	5th & 6th graders	Digit-letter substitutions	IC > IRC
Scott & Cherrington (1974)	College students	Test scoring	IC > GC = IRC
Julian & Perry (1967)	College students	Psychology lab exercises	IC > GC > GRC
Maller (1929)	5th-8th graders	Mathematics	IC > GC
Sims (1929) (Study 1)	College students	Digit-letter substitution	IC > GC
Sims (1929) (Study 2)	College students	Reading	IC > GC
de[illegible]arms (1957)	College students	Mathematics, scrambled words	IC > GC
Weinstein & Holzbach (1972)	College students	Coding	IC + GRC > GRC
Michaels (1975)	College students	Mathematics	Females' performance (but not males') varied directly with differential rewardings.

* IRC individual reward contingency; IC individual competition
GRC group reward contingency; GC group competition

Table 5

Life Events, Scale Values, Interquartile Ranges, and Experiences for Subjects by Ethnicity and Classroom Status

		Total Group			Ethnicity				Classroom Social Status					
					Hispanic		Anglo		Low		Middle		High	
Life Event	Rank	Scale Value	*Q*-Value	% experiencing	Scale	%	Scale	%	Scale	%	Scale	%	Scale	%
Losing parent	1	6.76	2.98	21.6	6.70	25.2	6.87	16.9	6.66	9.3	6.79	23.8	6.76	27.9
Going blind	2	6.58	2.69	8.9	6.56	11.9	6.67	1.4	6.01	2.4	6.58	10.9	6.70	9.3
Parental fights	3	6.54	2.15	66.1	6.57	63.3	6.50	69.6	6.43	74.4	6.52	61.8	6.67	72.1
✚Academic retainment	4	6.30	2.84	24.2	6.06	28.3	6.57	14.3	5.99	16.3	6.36	25.2	6.24	27.9
✚Suspected of lying	5	5.86	2.95	91.1	6.00	88.2	5.76	97.2	5.37	93.0	6.04	89.9	5.45	95.2
✚Wetting in class	6	5.78	3.97	14.0	5.59	9.9	6.17	22.5	5.50	14.0	5.90	12.9	5.69	18.6
✚A poor report card	7	5.52	3.37	54.4	5.75	61.8	5.42	39.4	6.33	74.4	5.41	51.4	5.41	44.2
Caught in theft	8	5.20	4.27	16.5	4.58	13.8	5.92	19.7	4.25	16.3	5.25	16.2	5.66	18.6
Having an operation	9	4.80	3.99	38.4	5.03	36.2	4.65	45.1	5.41	46.5	4.41	36.5	5.72	37.2
✚Sent to principal	10	4.68	3.44	58.1	4.84	62.9	4.59	47.9	4.56	57.1	4.69	60.8	5.07	51.2
✚Ridiculed in class	11	4.65	3.69	63.7	4.73	59.9	4.62	73.2	5.55	67.4	4.64	64.9	4.07	55.8
Getting lost	12	4.52	3.45	65.0	4.74	61.2	4.18	71.8	4.11	60.5	4.50	65.5	4.94	67.4
✚Move to new school	13	4.09	3.71	64.6	4.17	67.8	4.17	59.2	3.87	58.1	3.97	64.2	4.34	69.8
Scary dream	14	4.06	3.58	87.3	4.20	83.4	3.92	93.0	5.00	95.2	3.60	85.1	4.33	86.0
✚Not making 100 on test	15	4.05	3.08	83.9	4.35	82.8	3.27	85.9	4.33	74.4	4.00	87.8	4.08	81.4
✚Picked last on team	16	3.30	3.40	60.3	3.08	57.9	3.84	63.4	4.70	69.8	2.93	58.8	2.75	53.5
✚Giving class report	17	2.79	3.29	80.5	3.41	73.7	1.65	92.9	2.60	86.0	2.66	76.9	3.89	88.4
✚Losing in game	18	2.75	2.84	84.8	2.97	78.9	2.45	95.8	2.46	88.4	2.62	83.8	3.67	83.7
Going to dentist	19	2.54	3.45	87.7	2.86	84.9	2.31	95.7	2.67	93.0	2.48	85.1	2.71	90.5
New baby sibling	20	1.46	2.29	43.0	1.49	46.7	1.43	36.6	1.33	46.5	1.45	43.9	2.12	37.2
Sample totals		*N* = 273			167		88		44		185		44	

Above are life events which seem most important to students. There is a mark at the left of each event that could possibly be affected by classroom procedures. This is why it is so important to choose the correct instructional method when dealing with students.

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